

COMPLETE LISTING OF ALL CLAIMS

Kindly amend claims , and as shown in the listing of claims below. This listing of claims will replace all prior versions, and listings of claims in the application.

1 1. (currently amended) A method for infiltrating an organic material into spaces in one or more
2 nanostructures, comprising:
3 disposing the organic material proximate the nanostructures; and
4 infiltrating the organic material into the spaces in the nanostructures by exposing the organic
5 material to a solvent vapor.

1 2. (original) The method of claim 1 wherein disposing the organic material proximate the
2 nanostructures includes disposing a layer of a polymer process solution on a nanostructured
3 template.

1 3. (original) The method of claim 2 wherein the nanostructured template has spaces between
2 about 5 nm and about 1000 nm wide.

1 4. (original) The method of claim 2 wherein the spaces in the nanostructured template include
2 tubes between about 1 nm and about 1000 nm in diameter with a tube density between about
3 10^{12} tubes/m² and about 10^{16} tubes/m².

1 5. (original) The method of claim 1, wherein the nanostructures include one or more nanopores,
2 cavities, or interstitial spaces between pores, tubes or rods.

1 6. (original) The method of claim 5 wherein disposing the organic material proximate the
2 nanostructures includes mixing the nanotubes into a polymer process solution.

1 7. (original) The method of claim 1 wherein the organic material is a small molecule.

1 8. (original) The method of claim 1 wherein the organic material is a pigment, dye or fullerene.

1 9. (original) The method of claim 1 wherein the organic material is a polymer.

1 10. (currently amended) The method of claim 9 wherein the polymer includes one or more
2 polymers selected from the group of poly(phenylene) and derivatives thereof, poly(phenylene

3 vinylene) and derivatives thereof (e.g., poly(2-methoxy-5-(2-ethyl-hexyloxy)-1,4-phenylene
4 vinylene (MEH-PPV), poly(para-phenylene vinylene), (PPV)), PPV copolymers,
5 poly(thiophene) and derivatives thereof (e.g., regioregular poly(3-octylthiophene-2,5,-diyl),
6 ~~regioregular~~, regiorandom poly(3-octylthiophene-2,5,-diyl), ~~regiorandom~~, poly (3-
7 hexylthiophene) (P3HT), regioregular poly(3-hexylthiophene-2,5-diyl), ~~regioregular~~,
8 regiorandom poly(3-hexylthiophene-2,5-diyl)), ~~regiorandom~~), MDMO,
9 poly(thienylenevinylene) and derivatives thereof, and poly(isothianaphthene) and derivatives
10 thereof, tetra-hydro-thiophene precursors and derivatives thereof, poly-phenylene-vinylene
11 and derivatives organometallic polymers, polymers containing perylene units,
12 poly(squaraines) and their derivatives, discotic liquid crystals polyfluorenes, polyfluorene
13 copolymers, polyfluorene-based copolymers and blends, [[e.g.]] polyfluorene-based
14 copolymers co-polymerized and/or blended with ~~materials such as~~ charge transporting
15 compounds and/or light absorbing compounds, [[e.g.]] polyfluorene-based copolymers co-
16 polymerized and/or blended with tri-phenyl-amines and derivatives[[]]], ~~and/or light-~~
17 ~~absorbing compounds (e.g. polyfluorene-based copolymers~~ co-polymerized and/or blended
18 with fused thiophene rings and derivatives, generally hetero-atom ring compounds with or
19 without substituents[[]]], and/or fullerenes, dyes or pigments.

1 11. (currently amended) The method of claim 10 wherein the solvent vapor ~~includes chloroform~~
2 is selected from the group of acetone, chloroform, benzene, cyclohexane, dichloromethane,
3 ethanol, diethyl ether, ethyl acetate, hexane, methanol, toluene, xylene, mixtures of two or
4 more of these, and derivatives of one or more of these.

1 12. (original) A method for making an optoelectronic device, comprising:
2 providing a nanostructured template having spaces between one or more nanostructures;
3 infiltrating an organic material into the spaces by disposing the organic material proximate
4 the nanostructures and exposing the organic material to a solvent vapor; and
5 placing the nanostructured template and or organic material in electrical contact with an
6 electrode.

1 13. (original) The method of claim 12 wherein disposing the organic material proximate the
2 nanostructures includes disposing a layer of an organic process solution on a nanostructured
3 template.

1 14. (original) The method of claim 12 wherein the spaces in the nanostructured template include
2 tubes between about 1 nm and about 1000 nm in diameter with a tube density between about
3 10^{12} tubes/m² and about 10^{16} tubes/m².

1 15. (original) The method of claim 12 wherein the organic material includes small molecules.

1 16. (original) The method of claim 15 wherein the small molecules include pentacene or
2 pentacene precursors.

1 17. (original) The method of claim 12 wherein the organic material is a pigment, dye or
2 fullerene.

1 18. (original) The method of claim 12 wherein the organic material is a polymer.

1 19. (currently amended) The method of claim 18 wherein the polymer includes one or more
2 polymers selected from the group of poly(phenylene) and derivatives thereof, poly(phenylene
3 vinylene) and derivatives thereof (e.g., poly(2-methoxy-5-(2-ethyl-hexyloxy)-1,4-phenylene
4 vinylene (MEH-PPV), poly(para-phenylene vinylene), (PPV)), PPV copolymers,
5 poly(thiophene) and derivatives thereof (~~e.g.,~~ regioregular poly(3-octylthiophene-2,5,-diyl),
6 ~~regioregular,~~ regiorandom poly(3-octylthiophene-2,5,-diyl), ~~regiorandom,~~ poly (3-
7 hexylthiophene) (P3HT), regioregular poly(3-hexylthiophene-2,5-diyl), ~~regioregular,~~
8 regiorandom poly(3-hexylthiophene-2,5-diyl), ~~regiorandom~~), MDMO,
9 poly(thienylenevinylene) and derivatives thereof, and poly(isothianaphthene) and derivatives
10 thereof, tetra-hydro-thiophene precursors and derivatives thereof, poly-phenylene-vinylene
11 and derivatives organometallic polymers, polymers containing perylene units,
12 poly(squaraines) and their derivatives, discotic liquid crystals polyfluorenes, polyfluorene
13 copolymers, polyfluorene-based copolymers and blends, [[e.g.] polyfluorene-based
14 copolymers co-polymerized and/or blended with ~~materials such as~~ charge transporting
15 compounds and/or light absorbing compounds, [[e.g.] polyfluorene-based copolymers co-
16 polymerized and/or blended with tri-phenyl-amines and derivatives[[]], and/or light-
17 absorbing compounds (e.g. polyfluorene-based copolymers co-polymerized and/or blended
18 with fused thiophene rings and derivatives, generally hetero-atom ring compounds with or
19 without substituents[[]], and/or fullerenes, dyes or pigments.

- 1 20. (original) The method of claim 12 wherein solvent vapor is selected from the group of
- 2 acetone, chloroform, benzene, cyclohexane, dichloromethane, ethanol, diethyl ether, ethyl
- 3 acetate, hexane, methanol, toluene, xylene, mixtures of two or more of these, and derivatives
- 4 of one or more of these.